

- Fig. 5 c.* Crotchet or hook of the foregoing. × Zeiss oc. 2, obj. D.
Fig. 5 d. Fortieth foot of the same. Enlarged.
Fig. 5 e. Dorsal crotchet of the fortieth foot. × Zeiss oc. 2, obj. D.
Fig. 6 a. Bristle of *Chætozone* Z. × Zeiss oc. 4, obj. D.
Fig. 7. Head and anterior region of *Cirratulispio*. Enlarged.

PLATE VII.

- Fig. 7 a.* Bristle from the seventh foot of *Cirratulispio*. × Zeiss oc. 4 obj. D, with full draw-tube.
Fig. 7 b. Crotchet from the first segment of the second region of the foregoing. × Zeiss oc. 4, obj. D.
Fig. 8. Bristle of *Chætozone* I., Canada. × Zeiss oc. 4, obj. D.
Fig. 9. Anterior bristle of *Chætozone setosa*, var. *canadensis*, from the tenth foot. × Zeiss oc. 4, obj. D.
Fig. 9 a. Posterior hook (crotchet) of the same. × as above.
Fig. 9 b. Capillary bristle alternating with crotchets. × as above.
Fig. 10. Bristles of *Chætozone whitevesi*. × Zeiss oc. 4, obj. D.
Fig. 11. Hook of *Chætozone setosa*, var., from Norway. × Zeiss oc. 4, obj. D.
Fig. 12. Tip of tail of *Cirratulus norvegicus*, unfortunately from a specimen not quite complete.
Fig. 12 a. Bristles of the foregoing. × as above.

XVII.—*New Species of Heterocera from Costa Rica*.—V.
 By W. SCHAUS, F.Z.S.

Syntomidæ.

Isanthrene monticola, sp. n.

Antennæ with the shaft black on basal half and at tips, otherwise white. Body ochreous; palpi tipped with black; black spots on tegulæ, five on thorax; black line on shoulders; dorsal and lateral black spots on basal segment of abdomen, followed by black intersegmental spots on other segments. Wings hyaline, the margins ochreous. Fore wings: the veins ochreous, partly irrorated with black; black streaks at base of costal and subcostal veins; apex and tornus more broadly ochreous, inwardly edged with black. Hind wings: the veins and inner margin finely black.

Expanse 34 mm.

Hab. El Sitio.

Sarosa mora, sp. n.

Antennæ black tipped with rufous. Body black; some blue on frons; whitish-yellow spots on tegulæ outwardly

edged with bright metallic blue; a dorsal whitish-yellow band at base of abdomen, extending laterally behind. Abdomen with two rows of metallic-blue spots above and a row of sublateral spots; a white band below beyond base; legs black spotted with blue; tarsi ochreous. Wings hyaline. Fore wings faintly tinged with brown; veins, terminal dashes between veins, outer half of inner margin, and the outer margin black; base of inner margin and costal margin reddish brown; the discocellular reddish brown; some bright blue metallic scales at base. Hind wings: the veins, outer margin narrowly, and a broader space at anal angle black.

Expanse 34 mm.

Hab. El Sitio, Sixola.

Loxophlebia egregia, sp. n.

Palpi and head black; frons white; a white spot on vertex. Body red; thorax medially black; abdomen dorsally black on three basal segments; last segment and anus black; coxæ roseate buff; legs outwardly black, inwardly roseate buff. Wings hyaline; veins and margins narrowly black, wider at apices and tornus; base of fore wings and inner margins of hind wings red.

Expanse 21 mm.

Hab. Guapiles.

Mesothera temperata, sp. n.

Antennæ black, irrorated with white before tip. Palpi and head black; the frons white. Collar black in front, yellow behind. Thorax black; patagia deep yellow. Abdomen deep yellow; a black dorsal spot on first segment; a large similar dorsal space on following three segments extending laterally, and shot with steel-blue; the last two segments black, shot with steel-blue; a lateral black band on segments 2-4; ventral valve black except at base. Thorax below yellow. Legs: femora yellow; fore and hind tibiæ and tarsi black; hind tibia and tarsi yellow, only black at joints. Wings hyaline: the veins and margins black. Fore wings: the tornus and apex broadly black; a yellow streak medially on subcostal; a black spot on discocellular. Hind wings: the costal margin medially yellow.

Expanse 29 mm.

Hab. Juan Vinas.

Mesotheren montana, sp. n.

Antennæ black. Head, collar, and thorax dark brown. Abdomen yellow; two rows of black dorsal spots on segments 2-6. Thorax below dark brown. Legs yellow; tarsi and part of hind tibiæ dark brown. Wings hyaline; the veins and margins narrowly dark brown, widening at apices; the discocellular of fore wings broadly blackish brown.

Expanse 39 mm.

Hab. Volcano Poas, 7000 ft.

Mesotheren ethela, sp. n.

Palpi brown. Head black; frons white; small white spots behind antennæ. Collar and thorax dark brown, patagia black; large white spots on shoulders. Abdomen bright yellow, terminally black. Fore legs brown, coxæ white; hind legs outwardly black, inwardly buff. Wings hyaline, the veins and margins brown. Fore wings: apex and tornus more broadly brown, a small white spot at base of subcostal vein.

Expanse 28 mm.

Hab. Sixola.

Chrostosoma sitiona, sp. n.

Palpi, antennæ, and head black. Body yellow, the abdomen terminally black. Legs black, coxæ yellow. Wings hyaline; veins and inner margins finely black; apices very broadly black. Fore wings: the costal and outer margin rather broadly black; some yellow at base.

Expanse 29 mm.

Hab. El Sitio.

Cosmosoma nobilis, sp. n.

Antennæ, palpi, and head black; the frons metallic blue. Collar black with metallic-blue spots. Thorax black; some dorsal blue scales; a large opalescent blue spot on metathorax. Abdomen black; the segments posteriorly narrowly yellow; lateral transverse blue lines and sublateral blue spot; the last two segments metallic blue; two opalescent spots dorsally on first segment. Legs black irrorated with blue. The wings hyaline; veins and margins black, broadly at apices. Fore wings: a large black spot at end of cell; the base of costal margin and below cell with metallic-blue scales. Fore wings below: the basal third of costa streaked

with blue; some blue scales below cell at base. Hind wings below: the basal half of costal margin streaked with blue extending into cell.

Expanse 44 millim.

Hab. Juan Vinas.

Cosmosoma guapila, sp. n.

Antennæ and body black; palpi irrorated with white in front; metallic-blue spots on frons, vertex, collar, shoulders, and patagia anteriorly; paired spots on metathorax; dorsal and lateral blue spots on abdomen; transverse creamy-buff streak on third and fourth segments; anal segment orange-red; ventral valve banded with white; coxæ white; legs black, irrorated with metallic blue at joints; fore tibia streaked with white; hind tarsi partly whitish. Wings pale brownish hyaline; the veins and margins finely black; metallic-blue spots at base of fore wings. Hind wings: the basal half of costa and cell creamy buff; the inner margin broadly black.

Expanse 29 mm.

Hab. Guapiles.

Allied to *C. beatrix*, Dr., but much smaller.

Cosmosoma cinctuta, sp. n.

♀. Antennæ and palpi black. Head black, irrorated with blue on vertex; some white on frons. Tegulæ and patagia orange edged with black. Thorax black, irrorated with blue behind. Abdomen: basal segment orange, divided by a black dorsal line, ochreous black with two rows of blue spots, and dorsal blue spots obsolescent on segments 3 and 4; two small orange spots on fourth segment. Legs orange, partly streaked with black. Wings hyaline, the veins and margins black. Fore wings: the apex more broadly black; an orange streak on costa from base to black apical portion; some orange on base of inner margin. Hind wings: some orange at base of inner margin.

Expanse 30 mm.

Hab. Juan Vinas.

Allied to *C. saron*, Druce.

Cosmosoma rubritarsis, sp. n.

Antennæ black, tipped with white. Palpi, head, and thorax black; some dark blue on frons and vertex. Abdomen above crimson; a dorsal black line expanding on basal

segment; last two segments black with small blue spots; three triangular black lateral spots, partly irrorated with blue; underneath black. Coxæ and legs red, the latter outwardly streaked with black; tarsi red. Wings hyaline, the veins and margins black. Fore wings: the apex more broadly black; a narrow black spot on discocellular.

Expanse 38 mm.

Hab. Guapiles.

Cosmosoma colona, sp. n.

Antennæ black, irrorated with white at tips. Body black: frons, tegulæ, and patagia shaded with dark metallic blue. Abdomen with transverse dark blue lines interrupted dorsally; the last two segments vermilion-red; a lateral white spot on first segment; white spots at base of mid and hind coxæ. Legs streaked with dark blue. Wings hyaline, the veins and margins black. Fore wings: the apex broadly black; a black streak on discocellular. Hind wings: the inner margin broadly black.

Expanse 33 mm.

Hab. Sixola.

Cosmosoma angustimargo, sp. n.

Antennæ, head, collar, thorax, and last two segments of abdomen black; abdomen otherwise bright yellow; frons laterally white; a white spot laterally behind eyes; a few white scales on vertex. Legs dark brown; fore coxæ streaked with white. Wings hyaline, the veins and margins narrowly black, widening at apices. Fore wing: the discocellular angled, finely black; a white spot at base, followed by a similar white spot.

Expanse, ♂ 29 mm.

Expanse, ♀ 37 mm.

Hab. Juan Vinas.

Cosmosoma impudica, sp. n.

Antennæ, pectus, legs, palpi, and head black; two white spots on frons. Collar, thorax, and abdomen bright yellow. Wings hyaline, the veins and margins black. Fore wings: the base yellow; an inwardly angled black spot on discocellular; the terminal band wider at apex and at tornus. Hind wing: the inner margin and apex more broadly black.

Expanse 37 mm.

Hab. Juan Vinas, El Sitio.

Differs from *C. pudica*, Druce, in having no black terminally on abdomen.

Holophæa gentilicia, sp. n.

♂. Antennæ and abdomen above black, some blue on anal segment. Frons dark brown, irrorated with metallic blue. Vertex, collar, and thorax red. Body below and legs black-brown. Fore wings dark brown; the base of costa and below cell red. Hind wings similar dark brown; a blackish area below cell.

Expanse 30 mm.

The female has less red at base of fore wings, and the last three segments of abdomen are blue-black.

Expanse 31 mm.

Hab. Juan Vinas, Tuis.

Psilopleura dolens, sp. n.

♂. Antennæ and body black; red spots on shoulders and patagia. Wings smoky hyaline; the veins and margins blackish, widest at apices and on inner margin and anal angle of hind wings.

Expanse, ♂ 22 mm.

Expanse, ♀ 25 mm.

Hab. Sixola.

Saurita latens, sp. n.

♂. Antennæ and body black; a red spot on shoulders and a small red dorsal spot at base of abdomen; fore tibiæ inwardly buff. Wings black-brown, the veins darker.

Expanse, ♂ 25 mm.

Expanse, ♀ 30 mm.

Hab. Juan Vinas, El Sitio.

Saurita rubripuncta, sp. n.

♀. Antennæ black, irrorated with white at apex. Body black; metallic-blue spots on frons, vertex, tegulæ, and metathorax; metallic streaks on thorax and patagia; lateral spots on abdomen; a transverse red streak at base of abdomen; sublateral white spots on two basal segments; base of abdomen below shot with dark green; basal segments fringed with white and followed by a large white spot; coxæ white. Wings hyaline, the veins black. Fore wings: the base black with a crimson spot; a broad transverse

median black band suffusing with the more broadly black inner margin at tornus; the apex broadly black, especially above vein 5. Hind wings: the outer margin narrowly black, the apex broadly black. Underneath with a crimson spot at base of both wings.

Expanse 29 mm.

Hab. Sixola, Banana River.

Saurita diffusa, sp. n.

♂. Antennæ and body black; metallic-green patches on frons, behind antennæ, on tegulæ, metathorax, and lateral and sublateral spots on abdomen; shoulders crimson; a dorsal crimson spot on base of abdomen; fore coxæ metallic green. Fore wings blackish brown, the veins black. Hind wings very broad, black; the costal margin broadly dark greyish buff.

Expanse 29 mm.

The female similar, but rather lighter brown; the hind wings normal, fuscous.

Expanse 30 mm.

Hab. Juan Vinas, El Sitio, Tuis.

Saurita submacula, sp. n.

Antennæ black. Body and wings dark brown; a few blue scales on frons, on tegulæ outwardly, and on mesothorax; a large crimson spot on patagia. Fore wings: some blue scales at base of costa and cell. Hind wings: a buff streak and a small patch of roseate scales at base below cell. Wings below: a red space at base of hind wings, narrower below cell and not reaching inner margin.

Expanse 36 mm.

Hab. La Laguna.

Argyræides notha, sp. n.

Antennæ, head, collar, thorax, and first segment of abdomen black; frons white. Abdomen: second segment constricted, unscaled, otherwise dark brownish green above; laterally roseate, meeting ventrally on last two segments; roseate band ventrally on segments 3-5; segments 1 and 2 white below. Thorax below and legs black; femora and some lateral spots white; a crimson streak on fore tibiæ. Wings hyaline; the veins and margins narrowly black. Fore wings: a hyaline streak at base of costal margin; a crimson basal spot; a small crimson spot terminally below

vein 2. Hind wings: the apex and inner margin more broadly black.

Expanse 25 mm.

Hab. Juan Vinas.

Argyroides spectrum, sp. n.

Antennæ reddish brown, the pectinations black. Body above black; a transverse buff streak behind metathorax. Abdomen: a lateral white streak on three basal segments; a ventral white streak. Thorax below with some white streaks. Legs light brown. Wings hyaline. Fore wings: the veins, base of inner margin, outer half of costal margin, and cilia light reddish brown; the outer margin from above vein 4 to apex narrowly dark brown, irrorated with light reddish brown. Hind wings: the outer margin from before vein 3 to apex broadly dark brown.

Expanse 28 mm.

Hab. Volcano Poas.

Chrysostola mellita, sp. n.

Palpi, head, collar, and thorax black; opalescent lilacine purple spots on vertex and tegulæ in front. Abdomen: first segment above black, mixed with yellow hairs dorsally; segments 2-5 yellow; last segments black, shot with lilacine purple; underneath yellow, except last two segments, which are black. Thorax below and legs yellow; tarsi black. Wings hyaline. Fore wings: the basal half of costal margin and veins, also inner margin to near tornus, yellow, irrorated with black at base; the outer half of veins and margins otherwise finely black; the apex broadly black; a black streak on discocellular. Hind wings: costal margin, veins, and inner margin yellow, the latter with some fuscous hairs; the apex broadly black, narrowing to vein 2; the veins black close to black area.

Expanse 30 mm.

Hab. Sixola.

Ecdemus obscuratum, sp. n.

Palpi ochreous and white at base, otherwise black, streaked with white in front; some ochreous below and at sides of eyes. Antennæ black, irrorated with white at tips. Collar and thorax black. Abdomen blue-black above, white ventrally; coxæ white; some whitish streaks on legs. Fore wings black, the veins distinct; a hyaline streak above and below median vein, with short streaks between veins 2-5,

all thinly irrorated with black scales. Hind wings hyaline white; the veins, costal margin, and outer margins blackish.

Expanse 25 mm.

Hab. Guapiles.

Antichloris puriscal, sp. n.

Palpi black, streaked with white in front. Shaft of antennæ dark green, the pectinations black. Head black and dark green, with red patches below at sides. Collar dark green. Thorax black, the patagia streaked with dark green. Abdomen black; basal segment dorsally blue-green, a bright green dorsal stripe and duller green lateral stripes; a sublateral white line. Legs black-green, inwardly streaked with buff; fore coxæ white. Wings velvety black. Fore wings: green streaks at base on subcostal, and above and below submedian; the apex white. Hind wings: the costal margin broadly silky grey-white.

Expanse 36 mm.

Hab. Puriscal Mts.

Aclytia albistriga, sp. n.

Palpi ochreous at base, otherwise grey-black, fringed with grey in front and whitish behind. Head, collar, and thorax black; white streaks on frons and patagia; ochreous spots on head behind, and ochreous scales on tegulæ outwardly. Abdomen metallic blue above, black sublaterally, white ventrally. Legs grey, streaked with white. Fore wings black-brown; a greyish-blue patch at base of inner margin; an oblique white fascia from below costa beyond middle to just above tornus. Hind wings blue-black; a hyaline streak from base below cell, including lower portion of cell outwardly and a little beyond cell; a slight hyaline streak at base of inner margin.

Expanse 32 mm.

Hab. Guapiles.

Agyrta conspicua, sp. n.

♂. Palpi red tipped with black. Antennæ black. Head crimson. Body above dark blue; a fine dorsal whitish line on abdomen; underneath irrorated with white. Legs black, streaked with white and blue; fore coxæ white. Wings and veins blue-black, the costal and inner margins shot with brilliant blue. Fore wings: a large hyaline space in and below cell, outcurved at vein 4 to near outer margin at vein 2. Hind wings: a broad hyaline streak

from base through lower part of cell and below it to near outer margin.

Expanse 45 mm.

Hab. Tuis.

Eucereon relegatum, sp. n.

Palpi ochreous brown at base, otherwise black. Head, collar, and thorax black; a brown line from behind antennæ across tegulæ; tegulæ dorsally and patagia edged with brown; shoulders brown; brown hairs on metathorax. Abdomen black above, laterally orange, expanding terminally and leaving only a dorsal black line; anus black; underneath yellowish white except on last segment. Legs black, streaked with buff. Fore wings greyish, the veins and inner margin dark brown, the former edged with lighter brown; oval black spots edged with buff, two basal, three antemedial from below cell, two medial above and below submedian; a long fuscous spot on costa extending across cell but shorter basally; two fuscous spots at end of cell and others beyond between the veins and on costa, the spot above vein 2 largest and suffusing with subterminal spot; subterminal fuscous spots, smallest between veins 3 and 5; terminal fuscous spots between the veins. Hind wings white, semi-hyaline; the veins light brown; the margins narrowly fuscous.

Expanse 42 mm.

Hab. Cartago, Juan Vinas, Avangarez.

This species is the Central American form of *E. setosum*, Sepp.

Correbia semitransversa, sp. n.

♂. Palpi black, streaked below with ochreous brown. Frons black. Vertex and collar ochreous brown with a black medial streak. Thorax black, the patagia anteriorly ochreous brown. Abdomen black; a lateral stripe and ventrally except last two segments ochreous brown. Fore wings ochreous brown; a medial black band from costa to submedian; a black space at apex streaked with steel-grey, the inner edge outbent below 5 and narrowing to vein 2. Hind wing semihyaline fuscous; the veins and outer margin black; the costal margin yellow except at apex and with some medial black marks.

Expanse 39 mm.

Hab. Juan Vinas.

Allied to *C. obtusa*, Druce.

Correbidia costinotata, sp. n.

Palpi fulvous yellow, tipped and streaked above with black. Antennæ and frons black. Vertex, collar, and thorax fulvous yellow with a black central streak. Legs black; coxæ and base of femora fulvous yellow. Abdomen black; a lateral yellowish streak on first three segments. Fore wings fulvous yellow; a large purplish-black patch at apex, its inner edge irregular; a small black spot medially on costa; a fine black streak on inner margin from just beyond base. Hind wings semihyaline yellowish white, the inner and outer margin suffused with black. Underneath the costal margins more deeply yellow.

Expanse 33 mm.

Hab. Juan Vinas, Tuis.

Allied to *C. elegans*, Druce.

Propyria flora, sp. n.

Body and fore wings dark green: some blue scales on thorax and base of costa. Hind wings: the outer margin broadly black; a lilacine-white space from base to middle below cell, broadly surrounded by brilliant light blue metallic scales.

Expanse 24 mm.

Hab. Cachi.

Allied to *P. criton*, Druce.

Arctiidaë.

Prumala herbosa, Schs.

In the 'Annals' for last August I described two forms under the above name. The first male described must sink as a synonym of *P. underwoodi*, Roths., erroneously described as a *Diacrisia*. The name "*herbosa*" can be retained for the males mentioned as having the postmedial band reduced to a line. The female of *P. herbosa* has the postmedial spots almost obsolescent, whereas in *P. underwoodi* they are well marked.

Automolis priscilla, sp. n.

♂. Palpi yellow at base, otherwise grey-white with a fine lateral dark streak. Head orange; a black transverse line on frons and a black spot on vertex. Collar orange with two olive-brown dorsal lines. Thorax olive-brown; a dorsal whitish line; patagia orange, edged with olive-brown and

whitish lines. Abdomen orange; a large dorsal black patch on three basal segments; last segment black; anal hairs whitish. Legs whitish grey, with dark grey streaks; fore coxæ orange. Fore wings olive-brown, the submedian fold and veins white except on large postmedial yellow spot, broad on costa, narrowing to vein 3. Hind wings yellow; the outer margin fuscous grey from anal angle to just above vein 3.

Expanse 33 mm.

The female has a black dorsal spot beyond the basal patch, and a lateral black line on abdomen. The hind wings have the outer margin broadly black.

Expanse 38 mm.

Hab. El Sitio, La Florida.

Closely allied to *A. persimilis marginata*, R., but differs in the markings of the head and collar, and narrow margin to hind wings in male.

Pelochyta misera, sp. n.

♂. Palpi orange, the tips dark brown; a black lateral spot. Frons orange, spotted with black. Vertex ochreous brown; two black spots, one between antennæ, the other posteriorly. Collar orange in front, dark brown behind; four black spots. Thorax dark brown, some orange on shoulders. Abdomen above dark brown on basal half, black terminally; underneath orange; lateral black spots. Legs chiefly black; fore coxæ orange spotted with black. Wings dark brown. Fore wings: a small orange spot at base; a black shade on discocellular.

Expanse 37 mm.

Hab. Guapiles.

Halisidota montana, sp. n.

♂. Antennæ light brown. Body ochreous buff above, the abdomen dorsally tinged with orange; two brown points on collar. Fore wings yellowish; the extreme costa tinged with light brown; the inner margin from beyond base dark brown; a brown spot across middle of discocellular; some small brown spots along costa and along the faint traces of darker lines, sometimes obsolescent. Hind wings semi-hyaline, whitish tinged with yellow on inner margin.

Expanse 42 mm.

Hab. Volcano Poas.

Allied to *H. flavescens*, R.

Halisidota cirphis, sp. n.

♂. Ochreous; pectinations of antennæ, head, and collar tinged with pale olivaceous brown, and with small fuscous spots on collar, and on patagia anteriorly and medially; the ochreous hairs at base of abdomen shading to brown posteriorly. Fore wings with scattered brown scales not forming lines, a black spot at end of cell at veins 4 and 5, and a minute spot in cell medially; a subterminal row of small dark brown spots. Hind wings paler, the area below cell and vein 2 shaded with fuscous brown; a marginal dark streak below vein 6. Underside with fuscous streaks below cell and along inner margin. Tarsi tipped with dark brown.

Expanse 38 mm.

Hab. Juan Vinas, Volcano Turrialba, 5800 ft.

Halisidota turrialba, sp. n.

Palpi and head ochreous brown. Collar and thorax ochreous yellow, streaked with brown. Abdomen brown above, yellowish white laterally and underneath. Fore wings yellow, heavily shaded with brown, except at base, on outer margin and apical third of costal margin, forming a dark space at end of cell, a broad streak to apex, and a large medial space from cell to inner margin: on this latter are elongated lunular yellow spots below vein 2, and between veins 2 and 4, also a yellow patch on middle of inner margin; an elongated yellow spot at end of cell above median and one beyond cell between 5 and 6; some brown irrorations at base, except on inner margin, and on outer margin, forming a series of small submarginal and marginal spots. Hind wings fuscous brown; the costal margin broadly yellowish white; a small brown spot at apex.

Expanse 59 mm.

Hab. Turrialba, 5800 ft.

Halisidota subannula, sp. n.

♂. Ochreous; pectinations, a line on frons, spots on vertex and tegulæ and dorsal edge of patagia brown. Fore wings: the lines brown; a basal and subbasal line almost meeting on submedian; an antemedial line outwardly broadly shaded with brown on costa, followed by fine annular spots and a fine medial line; a linear white spot at end of cell preceded by a short black dash and outwardly edged by the inner line of postmedial, which is geminate, wavy, partly filled in with brown shadings; the subterminal nearly

straight, outwardly shaded with brown and followed by an irregular fine line; submarginal and marginal line coalescing at veins, the latter extending outwardly between veins and forming dark points on the white cilia; a dark submarginal point between 5 and 6; the inner margin from beyond base dark brown. Hind wings semihyaline yellow. On the underside of hind wings a small annular spot on costa distinguishes this species from any allied forms.

Expanse 34 mm.

Hab. Banana River.

Hypocrisias gemella, sp. n.

♂. Head and collar cinnamon-brown, with darker edging to tegulæ. Thorax yellowish buff. Abdomen brown above, yellowish buff below. Fore wings yellowish buff, thickly irrorated with dull brown, except on basal space, which is crossed by some fine brown lines, and is limited by a dull brown antemedial shade outcurved on its basal side; a medial spot on costa, one at end of cell, surmounted by a smaller costal spot, postmedial and subterminal spots clear yellowish buff, edged with dull brown; the postmedial spots obsolescent between veins 2 and 5; the subterminal spot between 3 and 4 replaced by a brown point; the veins, a terminal line, and cilia brown. Hind wings white, tinged with brown; the veins and a terminal line brown; cilia brownish white.

Expanse 38 mm.

The female rather brighter in colour, the spots larger and all present; the postmedial between 3 and 5 very small.

Expanse 40 mm.

Near *H. punctata*, Druce.

Epantheria perplexa, sp. n.

♂. Frons black. Vertex, collar, and thorax white; black annuli on collar and mesothorax; elongated linear black spots on patagia and metathorax. Abdomen dorsally brown on two basal segments, otherwise dark blue, with dorsal orange spots sometimes expanding and forming transverse orange bands; lateral orange stripes or spots; a sublateral black line; ventrally white with rows of black spots. Fore wings white; basal, antemedial, medial, postmedial, and subterminal annuli, some filled in with light grey; large terminal black spots, round, cuneiform, or elongated; the costal spots large, entirely black, the medial spot suffusing with a black spot at end of cell, below which is a black

streak and another black spot beyond cell. Secondaries white; a black streak along inner margin; a broad black medial fascia from end of cell to inner margin; a black spot on anal lobe.

Expanse 53 mm.

Hab. Guapiles, Limon, Tuis.

Paranerita niobe, sp. n.

♀. Palpi roseate above, yellowish below. Frons, collar, and thorax purplish brown; vertex yellow. Abdomen above crimson. Body below whitish. Fore wings purplish brown; a yellow space medially on costa connected with a yellowish-white spot in cell posteriorly rounded, the whole edged by a fine red line, and looking like an inverted hat with a wide brim; a yellow spot on costa at apex; the outer margin narrowly yellow, inset at vein 4, and inwardly lunular from 4 to apex. Hind wings roseate, the costal margin yellowish.

Expanse 35 mm.

Differs from *P. grandis*, R., in the colour of hind wings.

Hyponerita amelia, sp. n.

♂. Palpi roseate, yellowish in front. Head yellow; some roseate on frons and on vertex behind. Collar and thorax lilacine brown, the patagia and mesothorax irrorated with red. Abdomen roseate above. Body below luteous; fore coxæ roseate. Fore wings purplish brown; a large yellow spot on middle of costa, extending to vein 4, edged with crimson, which extends on costa towards base and apex; a small yellow spot below vein 2 edged with crimson which coalesces with the border of large spot; base of inner margin yellow, shaded above with crimson; outer margin yellow, widest below vein 4, and inwardly edged by a crimson line, outwardly lunular from vein 4 to apex. Hind wings roseate.

Expanse 24 mm.

Hab. Sixola.

Noctuidæ.

Letis albociliata, sp. n.

♀. Body and wings dark brown, the abdomen shaded with dark violaceous. Fore wings: some whitish irrorations chiefly on costa; antemedial buff on costa, inset, straight, in cell black, below cell lunular, black, inwardly edged with light brown; orbicular round, black, circled with light brown; reniform large, oval, somewhat oblique, linear,

black, outwardly edged with buff; a wavy black medial line beyond reniform, followed by two fainter black lines less wavy; the postmedial lunular black, outwardly edged with light brown, and with white on costa; subterminal small clusters of whitish scales; a wavy submarginal black line; a marginal straighter brown line; cilia white; fringe on inner margin fuscous. Hind wings slightly glossed with purple; the lines continued from fore wings; terminal yellowish shades at tips of veins; cilia black from vein 4 to anal angle. Underneath lighter brown; black spots at end of cells; fuscous medial and postmedial lines, with a fainter geminate line between them; subterminal white spots more distinct.

Expanse 84 mm.

Hab. La Florida, Guapiles.

Allied to *L. iphianassa*, Cr.

Letis tuisana, sp. n.

♂. Head, thorax, and wings dark brown, glossed with purplish. Abdomen black, tinged with purple; fine transverse lilacine lines posteriorly on segments. Fore wings: the base of costa with white irrorations; a fuscous streak on base of costa; a fuscous streak in cell more remote from base; antemedial black, interrupted in cell by orbicular, which is black, annular, outwardly edged with light brown and lilacine; reniform large, outlined as in orbicular, closely followed by a wavy geminate black medial line, filled in with lilacine brown; a similar line between the medial and postmedial, which is broad, lilacine brown, edged and crossed by lunular black lines, and terminating in a small white spot on costa; a subterminal fuscous shade spotted with lilacine brown, which becomes a line below vein 2; a submarginal wavy black line, outwardly shaded finely with light brown between the veins; a marginal finer black line; cilia fuscous. Hind wings with similar lines; the margin deeply crenulate; buff spot on cilia terminally. Fore wings below greyish brown; a fuscous spot in cell; a dark spot on discocellular; a dentate fuscous postmedial line; subterminal lilacine-white spots, forming a line below vein 3 inwardly shaded with fuscous; small black marginal spots between the veins. Hind wings below darker than fore wings and strongly tinged with purple; a large black spot on discocellular; a fine fuscous medial line, followed by a faint geminate dark shade; the postmedial black, lunular, dentate, outwardly shaded with lilacine; a broad fuscous subterminal shade,

outwardly shaded with white from inner margin to vein 3, and from vein 6 to apex.

Expanse 80 mm.

The female has the lines shaded with lilacine, the spots outwardly edged with white; the postmedial broadly white, lunular dentate, crossed by a heavy fuscous-brown line; the subterminal shade spotted, white, the spot below costa largest. Underneath the postmedial line is outwardly shaded with white.

Expanse 87 mm.

Hab. Tuis.

Trissophaes colubra, sp. n.

♂. Head, collar, and thorax dark violaceous brown; golden-brown patches on metathorax; a few lilacine scales on patagia. Abdomen orange; fuscous-brown dorsal tufts at base. Fore wings: the base to antemedial golden brown, crossed by a dark basal line; the antemedial inwardly oblique from costa to submedian near base, fine, blackish; the space beyond to outer line shaded with silky lilacine, and crossed by some fine brown lines; the orbicular a black point; the reniform consisting of two brownish lines and followed by a postmedial brown line from costa to vein 5; the outer line blackish from apex to inner margin before middle, and followed by a broad golden-brown shade, changing to lilacine brown on outer margin and towards apex; a submarginal dark streak between veins 3 and 7. Hind wings orange; the outer margin above vein 2 broadly black, its inner edge somewhat dentate; an irregular postmedial black fascia from vein 5 to inner margin above angle. Underneath the outer margin of hind wings is broadly black from veins 2-7, the apex irrorated with black.

Expanse 74 mm.

The female similar, except the fore wings which are dark silky brown, strongly tinged with purplish and with dull lilacine on outer margin; the basal and antemedial lines and medial shade inwardly oblique from costa, dark reddish brown, most noticeable on lobe of inner margin; the reniform projecting inwardly and outwardly along median vein, dark reddish brown; the postmedial irregular wavy, very oblique inwardly from vein 4 to inner margin; the outer line oblique from apex to between 5 and 6, straight to between 3 and 4 and outwardly shaded with very dark brown, then very oblique to middle of inner margin, where it is followed by a large reddish-brown space to near tornus, and has a whitish point on it between veins 2 and 3; sub-

terminal greyish shadings between 2 and 4, and others at tornus; dark marginal striæ above vein 4 to apex.

Expanse 90 mm.

Hab. Juan Vinas, El Sitio.

Also in B.M. from Peru.

Trissophaes anguina, sp. n.

♂. Palpi dark grey-brown. Thorax olive-brown. Abdomen dorsally grey, tinged with yellow laterally, and with transverse yellowish lines on segments posteriorly. Fore wings silky lilacine brown, finely striated; basal, antemedial, and medial darker shades, interrupted on median vein; a similar round shade at end of cell and a short line beyond it; a fine distinct line from apex to beyond middle of inner margin, outwardly shaded with darker brown above vein 2; terminal brown spots from vein 2 to apex; inner margin with a triangular lobe on basal half and excised before tornus. Hind wings deep yellow; a fuscous postmedial patch from vein 3 to anal angle; outer margin broadly fuscous above vein 2.

Expanse 53 mm.

Hab. Tunis.

There is a female of this species in the B.M. from the Godman Collection, where it was referred erroneously to *T. collusoria*, Cr.

Graphigona ? magnifica, sp. n.

♀. Body dull brown, faintly tinged with lilacine on head, collar, and thorax anteriorly, more strongly so on abdomen terminally and laterally; the abdomen above with long dark reddish-brown hairs. Fore wings dull dark brown; the costal margin medially tinged with lilacine, extending downwards across cell basally, and outwardly across reniform, which consists of a small reddish-brown crescent, followed by light brown and buff scales; a postmedial lilacine shade from costa to vein 4; a large round white spot between veins 2 and 3 and a smaller spot between 3 and 4; a large subterminal grey and light brown spot between veins 4 and 6, crossed by black striæ, and two smaller similar spots between 6 and 8 extending towards apex; a few buff striæ on costa and outer portion of wing. Hind wings black; a large postmedial roseate space from vein 5 to near anal angle. Fore wings below with a large white patch from vein 5 to near tornus. Hind wings below with roseate striæ between roseate patch and costa.

Expanse 120 mm.

Hab. San José.

This may be the female of *G. ? roseifer*, Feld., and was taken by Mr. C. H. Laukester in his house at San José.

Laccosmidæ.

Cicinnus pudens, sp. n.

♂. Body and wings light brown, thinly irrorated with black. Fore wings: a fine antemedial fuscous line angled on costa, then straight to inner margin; a small fuscous-brown spot at end of cell; a fuscous-brown oblique shade subterminally on costa, a large similar shade beyond to apex, and a fine geminate fuscous line from vein 7 to inner margin; a marginal dark brown shade from vein 4 to tornus. Hind wings: the outer margin shaded with dark brown; a fine fuscous postmedial line forming an outward curve near inner margin.

Expanse 45 mm.

Hab. Sixola, Juan Vinas, Avangarez.

Allied to *C. incerta*, Mösch.

Castniadæ.

Castnia drucei, sp. n.

♂. Head, thorax, and basal half of abdomen dorsally dark brown; abdomen otherwise whitish buff. Fore wings dark brown, shaded with dark green, an indistinct pale band from middle of costa to tornus, varying in intensity. Hind wings: the base dark brown, otherwise light reddish brown, except a large white area at anal angle and inner margin tapering to a point medially at vein 5. Fore wings below light brown; the transverse band broad, white, preceded by a reddish-brown shade and followed by a dark brown shade to a postmedial wavy white band from costa to vein 4; faint subterminal whitish spots, chiefly between veins 3 and 5. Hind wings below light brownish buff; a fine reddish medial line broken into spots near inner margin which is white, and followed by a faint brownish shade down-curved to anal angle; faintly darker marginal shades.

Expanse 84 mm.

The female differs in having the transverse band on fore wings white, and there are six postmedial white spots, the three lower ones between veins 4 and 7 outcurved.

Expanse 89 mm.

Hab. Rio Grande, Guapiles, San Geronimo. At Avangarez a male form was found which has the fore wings almost as light reddish brown as the hind wings and the transverse line on fore wings very distinct.

Castnia drucei is well figured in the 'Biologia' as *C. futilis*, Wlk., but is quite distinct. The type of *C. futilis* is probably only a form of *C. atymnius*, Dalm., as already suggested by Westwood.

Castnia delecta, sp. n.

♂. Palpi white in front. Frons black with some brown outwardly. Vertex, collar, and thorax brown, shading to reddish brown on abdomen above; abdomen below orange-yellow; thorax whitish grey; legs chiefly reddish brown; coxæ white. Fore wings reddish brown, thinly irrorated with dull brown; a large round spot at end of cell; a dark brown line from middle of inner margin to apex, somewhat obsolescent above vein 7; a subterminal small white spot edged with dark brown between 7 and 8; cilia dark brown. Hind wings reddish; a black shade at base of inner margin; five large black spots from near tornus to vein 6, and a smaller brown spot above vein 6; a narrow brown terminal shade, inwardly lunular and partly irrorated by a black line, from tornus to vein 6.

Expanse 49 mm.

Hab. Esperanza.

♀. Fore wings yellow, faintly tinged with green, more darkly shaded at apex, on inner margin beyond line, and on discal spot which is larger and extends on to costa; the subterminal white spot larger, and there is another minute white spot below vein 7; the basal third shaded with light reddish brown. Hind wings reddish yellow; the veins orange; the spots smaller, edged with reddish brown, somewhat indentate on veins, and the black line more distinct.

Expanse 57 mm.

Hab. Cordova, Mexico.

Gazera carilla, sp. n.

♂. Antennæ yellow, black at base. Head black, spotted with white; white lines behind eyes; collar black, shaded with green, edged posteriorly with yellow. Thorax dark brown, the patagia black shaded with green; yellow spots on mesothorax and metathorax. Abdomen above rufous at base, shading to green-grey, a lateral rufous band; a sublateral black stripe; underneath whitish yellow. Legs black,

streaked with white; coxæ yellow. Fore wings black; the basal half of cell and a broad fascia above inner margin from base to beyond vein 2 reddish brown; a spot at end of cell and streak on costa above it yellow, irrorated with pale olive-brown; a postmedial quadrate, downwardly oblique, brownish patch crossed by vein 3; a subterminal oblique row of spots from costa to vein 4, yellowish, thickly irrorated with pale olive-brown; a marginal row of yellowish-white spots, smaller and quadrate between veins 3-6, otherwise elongated, the subcostal spots irrorated with brown. Hind wings rufous; a broad black fascia along subcostal; the outer margin black, deeply dentate inwardly on veins, the interspaces with yellowish spots at their base; a postmedial black fascia from veins 2-4. Underneath the spots on fore wings are chiefly clear yellow.

Expanse 96 mm.

Hab. Carillo.

Allied to *G. zagræa*, Feld., but the basal brown markings are entirely different.

XVIII.—A Synopsis of the Marsipobranchs of the Order
Hyperoartii. By C. TATE REGAN, M.A.

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THE *Hyperoartii* (Lampreys) are Marsipobranchs with the nasal aperture on the upper surface of the head and the naso-palatine canal ending blindly posteriorly. Eyes well-developed (in the adult). Two semicircular canals. Mouth with expanded toothed lips; tongue with a single anterior and a pair of posterior cuspidate laminae (compound teeth). Branchial sacs seven on each side, not far behind the head, communicating internally with a subœsophageal canal which opens anteriorly into the pharynx; an extra-branchial skeleton forming a basket-work. Eggs small, numerous; segmentation holoblastic; a metamorphosis. A caudal and two dorsal fins, sometimes united.

The larvæ (*Ammocetes*) appear to be extremely similar in all the northern genera. They are toothless, with a small transverse lower lip and a hood-like upper lip; a circle of fringed barbels surrounds the mouth. The eyes are rudimentary and subcutaneous, the small gill-openings lie in a